

BATCH

RAW SEQUENCE LISTING  
 PATENT APPLICATION: US/09/596,746A

DATE: 01/10/2001  
 TIME: 10:28:35

**ENTERED**

Input Set : A:\26311002001SUBLIST.TXT  
 Output Set: N:\CRF3\01102001\I596746A.raw

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4 <110> APPLICANT: Dattwyler, Raymond J.
5   Seinost, Gerald
6   Dykhuizen, Danial
7   Luft, Benjamin J.
8   Maria J.C. Gomes-Solecki
10 <120> TITLE OF INVENTION: Groups of Borrelia burgdorferi and
11   Borrelia afzelii That Cause Lyme Disease in Humans
14 <130> FILE REFERENCE: 2631.1002-001
C--> 16 <140> CURRENT APPLICATION NUMBER: US/09/596,746A
C--> 16 <141> CURRENT FILING DATE: 2000-06-19
16 <150> PRIOR APPLICATION NUMBER: US 60/140,042
17 <151> PRIOR FILING DATE: 1999-06-18
19 <160> NUMBER OF SEQ ID NOS: 84
21 <170> SOFTWARE: FastSEQ for Windows Version 4.0
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24 <211> LENGTH: 24
25 <212> TYPE: DNA
26 <213> ORGANISM: Artificial Sequence
28 <220> FEATURE:
29 <223> OTHER INFORMATION: Primer
31 <400> SEQUENCE: 1                                24
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34 <210> SEQ ID NO: 2
35 <211> LENGTH: 27
36 <212> TYPE: DNA
37 <213> ORGANISM: Artificial Sequence
39 <220> FEATURE:
40 <223> OTHER INFORMATION: Primer
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46 <211> LENGTH: 26
47 <212> TYPE: DNA
48 <213> ORGANISM: Artificial Sequence
50 <220> FEATURE:
51 <223> OTHER INFORMATION: Primer
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57 <211> LENGTH: 22
58 <212> TYPE: DNA
59 <213> ORGANISM: Artificial Sequence
61 <220> FEATURE:
62 <223> OTHER INFORMATION: Primer
64 <400> SEQUENCE: 4                                22
65 gggcttgtaa gctctttaac tg
67 <210> SEQ ID NO: 5

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68 <211> LENGTH: 573
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72 <220> FEATURE:
73 <221> NAME/KEY: CDS
74 <222> LOCATION: (1)...(573)
76 <400> SEQUENCE: 5
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78 Met Ala Cys Asn Asn Ser Gly Lys Asp Gly Asn Thr Ser Ala Asn Ser
79 1 5 10 15
81 gct gat gag tct gtt aaa ggg cct aat ctt aca gaa ata agt aaa aaa 96
82 Ala Asp Glu Ser Val Lys Gly Pro Asn Leu Thr Glu Ile Ser Lys Lys
83 20 25 30
85 att acg gat tct aat gcg gtt tta ctt gct gty aaa gag gtt gaa gcg 144
86 Ile Thr Asp Ser Asn Ala Val Leu Leu Ala Val Lys Glu Val Glu Ala
87 35 40 45
89 ttg ctg tca tct ata gat gag ctt gct aaa gct att ggt aaa aaa ata 192
90 Leu Leu Ser Ser Ile Asp Glu Leu Ala Lys Ala Ile Gly Lys Lys Ile
91 50 55 60
93 aaa aac gat ggt agt tta gat aat gaa gca aat cgc aac gag tca ttg 240
94 Lys Asn Asp Gly Ser Leu Asp Asn Glu Ala Asn Arg Asn Glu Ser Leu
95 65 70 75 80
97 tta gca gga gct tat aca ata tca acc tta ata aca caa aaa tta agt 288
98 Leu Ala Gly Ala Tyr Thr Ile Ser Thr Leu Ile Thr Gln Lys Leu Ser
99 85 90 95
101 aaa tta aac gga tca gaa ggt tta aag gaa aag att gcc gca gct aag 336
102 Lys Leu Asn Gly Ser Glu Gly Leu Lys Glu Lys Ile Ala Ala Ala Lys
103 100 105 110
105 aaa tgc tct gaa gag ttt agt act aaa cta aaa gat aat cat gca cag 384
106 Lys Cys Ser Glu Glu Phe Ser Thr Lys Leu Lys Asp Asn His Ala Gln
107 115 120 125
109 ctt ggt ata cag ggc gtt act gat gaa aat gca aaa aaa gct att tta 432
110 Leu Gly Ile Gln Gly Val Thr Asp Glu Asn Ala Lys Lys Ala Ile Leu
111 130 135 140
113 aaa gca aat gca gcg ggt aaa gat aag ggc gtt gaa gaa ctt gaa aag 480
114 Lys Ala Asn Ala Ala Gly Lys Asp Lys Gly Val Glu Glu Leu Glu Lys
115 145 150 155 160
117 ttg tcc gga tca tta gaa agc tta tca aaa gca gct aaa gag atg ctt 528
118 Leu Ser Gly Ser Leu Glu Ser Leu Ser Lys Ala Ala Lys Glu Met Leu
119 165 170 175
121 gct aat tca gtt aaa gag ctt aca agc cct gtt gtc cat gga tcc 573
122 Ala Asn Ser Val Lys Glu Leu Thr Ser Pro Val Val His Gly Ser
123 180 185 190
127 <210> SEQ ID NO: 6
128 <211> LENGTH: 191
129 <212> TYPE: PRT
130 <213> ORGANISM: borrelia burgdorferi
132 <400> SEQUENCE: 6
133 Met Ala Cys Asn Asn Ser Gly Lys Asp Gly Asn Thr Ser Ala Asn Ser

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134 1
135 Ala Asp Glu Ser Val Lys Gly Pro Asn Leu Thr Glu Ile Ser Lys Lys 15
136 20 25 30
137 Ile Thr Asp Ser Asn Ala Val Leu Ala Val Lys Glu Val Glu Ala 45
138 35 40 60
139 Leu Leu Ser Ser Ile Asp Glu Leu Ala Lys Ala Ile Gly Lys Lys Ile 80
140 50 55 75
141 Lys Asn Asp Gly Ser Leu Asp Asn Glu Ala Asn Arg Asn Glu Ser Leu 95
142 65 70 90
143 Leu Ala Gly Ala Tyr Thr Ile Ser Thr Leu Ile Thr Gln Lys Leu Ser 110
144 85 105
145 Lys Leu Asn Gly Ser Glu Gly Leu Lys Glu Lys Ile Ala Ala Lys 125
146 100 120
147 Lys Cys Ser Glu Glu Phe Ser Thr Lys Leu Lys Asp Asn His Ala Gln 140
148 115 135
149 Leu Gly Ile Gln Gly Val Thr Asp Glu Asn Ala Lys Lys Ala Ile Leu 160
150 130 155
151 Lys Ala Asn Ala Ala Gly Lys Asp Lys Gly Val Glu Glu Leu Glu Lys 175
152 145 150 170
153 Leu Ser Gly Ser Leu Glu Ser Lys Ala Ala Lys Glu Met Leu 190
154 165 185
155 Ala Asn Ser Val Lys Glu Leu Thr Ser Pro Val Val His Gly Ser 195
156 180
159 <210> SEQ ID NO: 7
160 <211> LENGTH: 557
161 <212> TYPE: DNA
162 <213> ORGANISM: Borrelia burgdorferi.
164 <220> FEATURE:
165 <221> NAME/KEY: CDS
166 <222> LOCATION: (1)...(557)
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171 1 5 10
173 gct gat gag tct gtt aaa ggg cct aat ctt aca gaa ata agt aaa aaa 96
174 Ala Asp Glu Ser Val Lys Gly Pro Asn Leu Thr Glu Ile Ser Lys Lys 30
175 20 25 45
177 att aca gaa tct aac gca gtt gtt ctg gcc gtg aaa gaa gtt gag acc 144
178 Ile Thr Glu Ser Asn Ala Val Val Leu Ala Val Lys Glu Val Glu Thr 40
179 35 46
181 tta ctt gca tct ata gat gaa ctt gct acc aaa gct att ggt aaa aaa 192
182 Leu Leu Ala Ser Ile Asp Glu Leu Ala Thr Lys Ala Ile Gly Lys Lys 60
183 50 55
185 ata ggc aat aat ggt tta gag gcc aat cag agt aaa aac aca tca ttg 240
186 Ile Gly Asn Asn Gly Leu Glu Ala Asn Gln Ser Lys Asn Thr Ser Leu 80
187 65 70 75
189 tta tca gga gct tat gca ata tct gac cta ata gca gaa aaa tta aat 288
190 Leu Ser Gly Ala Tyr Ala Ile Ser Asp Leu Ile Ala Glu Lys Leu Asn 95
191 85 90

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1/10/01

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193 qta ttg aaa aat gaa gaa tta aag gaa aag att gat acg gct aag caa 336
194 Val Leu Lys Asn Glu Glu Leu Lys Glu Lys Ile Asp Thr Ala Lys Gln
195 100 105 110
197 tgt tct aca gaa ttt act aat aag cta aaa aqt gaa cat gca gtg ctt 384
198 Cys Ser Thr Glu Phe Thr Asn Lys Leu Lys Ser Glu His Ala Val Leu
199 115 120 125
201 ggt ctg gac aat ctt act gat gat aat gca caa aga gct att tta aaa 432
202 Gly Leu Asp Asn Leu Thr Asp Asp Asn Ala Gln Arg Ala Ile Leu Lys
203 130 135 140
205 aaa cat gca aat aaa gat aag ggt gct gca gaa ctt gaa aag tta ttt 480
206 Lys His Ala Asn Lys Asp Lys Gly Ala Ala Glu Leu Glu Lys Leu Phe
207 145 150 155 160
209 aaa gcg gta gaa aac tta tca aaa gca gct caa gac aca tta aaa aat 528
210 Lys Ala Val Glu Asn Leu Ser Lys Ala Ala Gln Asp Thr Leu Lys Asn
211 165 170 175 557
213 gct gtt aaa gag ctt aca aqt cct att gt
214 Ala Val Lys Glu Leu Thr Ser Pro Ile
215 180 185
218 <210> SEQ ID NO: 8
219 <211> LENGTH: 185
220 <212> TYPE: PRP
221 <213> ORGANISM: Borrelia burgdorferi
223 <400> SEQUENCE: 8
224 Met Ala Cys Asn Asn Ser Gly Lys Asp Gly Asn Ala Ser Ala Asn Ser
225 1 5 10 15
226 Ala Asp Glu Ser Val Lys Gly Pro Asn Leu Thr Glu Ile Ser Lys Lys
227 20 25 30
228 Ile Thr Glu Ser Asn Ala Val Val Leu Ala Val Lys Glu Val Glu Thr
229 35 40 45
230 Leu Leu Ala Ser Ile Asp Glu Leu Ala Thr Lys Ala Ile Gly Lys Lys
231 50 55 60
232 Ile Gly Asn Asn Gly Leu Glu Ala Asn Gln Ser Lys Asn Thr Ser Leu
233 65 70 75 80
234 Leu Ser Gly Ala Tyr Ala Ile Ser Asp Leu Ile Ala Glu Lys Leu Asn
235 85 90 95
236 Val Leu Lys Asn Glu Glu Leu Lys Glu Lys Ile Asp Thr Ala Lys Gln
237 100 105 110
238 Cys Ser Thr Glu Phe Thr Asn Lys Leu Lys Ser Glu His Ala Val Leu
239 115 120 125
240 Gly Leu Asp Asn Leu Thr Asp Asp Asn Ala Gln Arg Ala Ile Leu Lys
241 130 135 140
242 Lys His Ala Asn Lys Asp Lys Gly Ala Ala Glu Leu Glu Lys Leu Phe
243 145 150 155 160
244 Lys Ala Val Glu Asn Leu Ser Lys Ala Ala Gln Asp Thr Leu Lys Asn
245 165 170 175
246 Ala Val Lys Glu Leu Thr Ser Pro Ile
247 180 185
250 <210> SEQ ID NO: 9
251 <211> LENGTH: 579

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252 <212> TYPE: DNA
253 <213> ORGANISM: Borrelia burgdorferi
255 <220> FEATURE:
256 <221> NAME/KEY: CDS
257 <222> LOCATION: (1)...(579)
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262 1 5 10 15
264 aat aca tct gca aat tct gct gat gag tct gtt aaa gga cct aat ctt 96
265 Asn Thr Ser Ala Asn Ser Ala Asp Glu Ser Val Lys Gly Pro Asn Leu
266 20 25 30
268 aca gaa ata agt aaa aaa att acg gat tct aat gca gtt tta ctt gct 144
269 Thr Glu Ile Ser Lys Lys Ile Thr Asp Ser Asn Ala Val Leu Leu Ala
270 35 40 45
272 atg aaa gag gtt gaa gca ttg ctg tca tct ata gat gaa att gct gct 192
273 Val Lys Glu Val Glu Ala Leu Leu Ser Ser Ile Asp Glu Ile Ala Ala
274 50 55 60
276 aaa gct att ggt aaa aaa ata cac caa aat aat ggt ttg gat acc gaa 240
277 Lys Ala Ile Gly Lys Lys Ile His Gln Asn Asn Gly Leu Asp Thr Glu
278 65 70 75 80
280 aat aat cac aat gga tca ttg tta gca gga gct tat gca ata tca acc 288
281 Asn Asn His Asn Gly Ser Leu Leu Ala Gly Ala Tyr Ala Ile Ser Thr
282 85 90 95
284 cta ata aaa caa aaa tta gat gga ttg aaa aat gaa gga tta aag gaa 336
285 Leu Ile Lys Gln Lys Leu Asp Gly Leu Lys Asn Glu Gly Leu Lys Glu
286 100 105 110
288 aaa att gat gca gct aag aaa tgt tct gaa aca ttt act aat aaa tta 384
289 Lys Ile Asp Ala Ala Lys Lys Cys Ser Glu Thr Phe Thr Asn Lys Leu
290 115 120 125
292 aaa gaa aaa cac aca gat ctt ggt aaa gaa ggt gtt act gat gct gat 432
293 Lys Glu Lys His Thr Asp Leu Gly Lys Glu Gly Val Thr Asp Ala Asp
294 130 135 140
296 gca aaa gaa gcc att tta aaa aca aat ggt act aaa act aaa ggt gct 480
297 Ala Lys Glu Ala Ile Leu Lys Thr Asn Gly Thr Lys Thr Lys Gly Ala
298 145 150 155
300 gaa gaa ctt gga aaa tta ttt gaa tca gta gag gtc ttg tca aaa gca 528
301 Glu Glu Leu Gly Lys Leu Phe Glu Ser Val Glu Val Leu Ser Lys Ala
302 160 165 170 175
304 gct aaa gag atg ctt gct aat tca gtt aaa gag ctt aca agc cct gtt 576
305 Ala Lys Glu Met Leu Ala Asn Ser Val Lys Glu Leu Thr Ser Pro Val
306 180 185 190 579
308 gtg
309 Val
313 <210> SEQ ID NO: 10
314 <211> LENGTH: 193
315 <212> TYPE: PRT
316 <213> ORGANISM: Borrelia burgdorferi
318 <400> SEQUENCE: 10

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VERIFICATION SUMMARY  
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Input Set : A:\26311002001SUBLIST.TXT  
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L:16 M:270 C: Current Application Number differs, Replaced Current Application No  
L:16 M:271 C: Current Filing Date differs, Replaced Current Filing Date